1. PRODUCT AND COMPANY IDENTIFICATION

Product Name                        Potassium Hydroxide
Cat No.                              P246-3; P250-1; P250-3; P250-10; P250-50; P250-500; P251-3; P251-50; P251-500; P258-12; P258-50; P258-50LC; P258-212
Synonyms                            Potassium hydrate; Lye; Caustic potash
Recommended Use                     Laboratory chemicals

Company                              Emergency Telephone Number
Fisher Scientific                     CHEMTREC®, Inside the USA: 800-424-9300
One Reagent Lane                     CHEMTREC®, Outside the USA: 703-527-3887
Fair Lawn, NJ 07410
Tel: (201) 796-7100

2. HAZARDS IDENTIFICATION

DANGER!                              Emergency Overview
Causes severe burns by all exposure routes. Harmful if swallowed. Water reactive.

Appearance                           Physical State
Light yellow                         Solid
Odor                                 odorless

Target Organs                        Eyes, Respiratory system, Skin, Gastrointestinal tract (GI)

Potential Health Effects             

Acute Effects                        

Principle Routes of Exposure

<table>
<thead>
<tr>
<th>Eyes</th>
<th>Skin</th>
<th>Inhalation</th>
<th>Ingestion</th>
<th>Chronic Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Causes severe burns. May cause blindness or permanent eye damage.</td>
<td>Causes severe burns. May be harmful in contact with skin. Repeated exposure may cause skin dryness or cracking.</td>
<td>Causes severe burns. May be harmful if inhaled.</td>
<td>Harmful if swallowed. Causes severe burns.</td>
<td>Tumorigenic effects have been reported in experimental animals.. Mutagenic effects have occurred in experimental animals..</td>
</tr>
</tbody>
</table>

See Section 11 for additional Toxicological information.
Aggravated Medical Conditions Preexisting eye disorders. Skin disorders.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium hydroxide</td>
<td>1310-58-3</td>
<td>100.0</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Immediate medical attention is required.

Ingestion Do not induce vomiting. Call a physician or Poison Control Center immediately.

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flash Point Method Not applicable
Autoignition Temperature No information available.
Explosion Limits No data available
  Upper No data available
  Lower
Suitable Extinguishing Media Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.
Unsuitable Extinguishing Media Carbon dioxide (CO2).
Hazardous Combustion Products No information available.
  Sensitivity to mechanical impact No information available.
  Sensitivity to static discharge No information available.

Specific Hazards Arising from the Chemical
Water reactive. Contact with metals may evolve flammable hydrogen gas. Thermal decomposition can lead to release of irritating gases and vapors.

Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA
Health 3 Flammability 0 Instability 1 Physical hazards N/A
6. ACCIDENTAL RELEASE MEASURES

Personal Precautions
Use personal protective equipment. Evacuate personnel to safe areas. Ensure adequate ventilation. Avoid dust formation. Do not get in eyes, on skin, or on clothing.

Environmental Precautions
Should not be released into the environment.

Methods for Containment and Clean Up
Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation.

7. HANDLING AND STORAGE

Handling
Use only under a chemical fume hood. Ensure adequate ventilation. Avoid dust formation. Do not breathe dust. Do not get in eyes, on skin, or on clothing.

Storage
Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Corrosives area.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Measures
Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Exposure Guidelines

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium hydroxide</td>
<td>Ceiling: 2 mg/m³</td>
<td>(Vacated) Ceiling: 2 mg/m³</td>
<td>Ceiling: 2 mg/m³</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Quebec</th>
<th>Mexico OEL (TWA)</th>
<th>Ontario TWA EV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium hydroxide</td>
<td>Ceiling: 2 mg/m³</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NIOSH IDLH: Immediately Dangerous to Life or Health

Personal Protective Equipment

Eye/face Protection
Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA’s eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166

Skin and body protection
Wear appropriate protective gloves and clothing to prevent skin exposure

Respiratory Protection
Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Physical State</th>
<th>Solid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Light yellow</td>
</tr>
<tr>
<td>Odor</td>
<td>odorless</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available.</td>
</tr>
<tr>
<td>pH</td>
<td>13.5 (0.1M)</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>No information available.</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>No information available.</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No information available.</td>
</tr>
</tbody>
</table>
9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boiling Point/Range</td>
<td>1320°C / 2408°F</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>360°C / 680°F</td>
</tr>
<tr>
<td>Decomposition temperature °C</td>
<td>No information available.</td>
</tr>
<tr>
<td>Flash Point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No information available.</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>2.04</td>
</tr>
<tr>
<td>Solubility</td>
<td>Soluble in water</td>
</tr>
<tr>
<td>log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>56.1</td>
</tr>
<tr>
<td>Molecular Formula</td>
<td>KOH</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Stability: Moisture sensitive. Air sensitive. Absorbs moisture from air and becomes liquid.

Conditions to Avoid: Avoid dust formation. Incompatible products. Excess heat. Exposure to moist air or water.

Incompatible Materials: Water, Metals, Acids

Hazardous Decomposition Products: Oxides of potassium

Hazardous Polymerization: Hazardous polymerization does not occur

Hazardous Reactions: None under normal processing.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

<table>
<thead>
<tr>
<th>Component Information</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium hydroxide</td>
<td>214 mg/kg (Rat)</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

Irritation: Causes severe burns by all exposure routes

Toxicologically Synergistic Products: No information available.

Chronic Toxicity

Carcinogenicity: There are no known carcinogenic chemicals in this product

Sensitization: No information available.

Mutagenic Effects: Mutagenic effects have occurred in experimental animals.
12. ECOLOGICAL INFORMATION

Ecotoxicity
Do not empty into drains.

Persistence and Degradability
No information available

Bioaccumulation/Accumulation
No information available

Mobility

<table>
<thead>
<tr>
<th>Component</th>
<th>log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium hydroxide</td>
<td>0.65</td>
</tr>
<tr>
<td></td>
<td>0.83</td>
</tr>
</tbody>
</table>

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods
Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. TRANSPORT INFORMATION

DOT

<table>
<thead>
<tr>
<th>UN-No</th>
<th>UN1813</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper Shipping Name</td>
<td>Potassium hydroxide, solid</td>
</tr>
<tr>
<td>Hazard Class</td>
<td>8</td>
</tr>
<tr>
<td>Packing Group</td>
<td>II</td>
</tr>
</tbody>
</table>

TDG

<table>
<thead>
<tr>
<th>UN-No</th>
<th>UN1813</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper Shipping Name</td>
<td>POTASSIUM HYDROXIDE, SOLID</td>
</tr>
<tr>
<td>Hazard Class</td>
<td>8</td>
</tr>
<tr>
<td>Packing Group</td>
<td>II</td>
</tr>
</tbody>
</table>

IATA

<table>
<thead>
<tr>
<th>UN-No</th>
<th>UN1813</th>
</tr>
</thead>
</table>
14. TRANSPORT INFORMATION

Proper Shipping Name  POTASSIUM HYDROXIDE, SOLID
Hazard Class          8
Packing Group         II

IMDG/IMO

UN-No                UN1813
Proper Shipping Name POTASSIUM HYDROXIDE, SOLID
Hazard Class         8
Packing Group        II

15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>Component</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>NLP</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>CHINA</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium hydroxide</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>215-181-3</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>KE-29139 X</td>
</tr>
</tbody>
</table>

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313
Not applicable

SARA 311/312 Hazardous Categorization
Acute Health Hazard   No
Chronic Health Hazard No
Fire Hazard           No
Sudden Release of Pressure Hazard No
Reactive Hazard       No

Clean Water Act
Thermo Fisher Scientific - Potassium Hydroxide

<table>
<thead>
<tr>
<th>Component</th>
<th>CWA - Hazardous Substances</th>
<th>CWA - Reportable Quantities</th>
<th>CWA - Toxic Pollutants</th>
<th>CWA - Priority Pollutants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium hydroxide</td>
<td>X</td>
<td>1000 lb</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Clean Air Act
Not applicable

OSHA
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

<table>
<thead>
<tr>
<th>Component</th>
<th>Hazardous Substances RQs</th>
<th>CERCLA EHS RQs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium hydroxide</td>
<td>1000 lb</td>
<td>-</td>
</tr>
</tbody>
</table>

California Proposition 65
This product does not contain any Proposition 65 chemicals.

State Right-to-Know

<table>
<thead>
<tr>
<th>Component</th>
<th>Massachusetts</th>
<th>New Jersey</th>
<th>Pennsylvania</th>
<th>Illinois</th>
<th>Rhode Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium hydroxide</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>X</td>
</tr>
</tbody>
</table>

U.S. Department of Transportation
Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class
E Corrosive material
D1B Toxic materials
16. OTHER INFORMATION

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Tel: (412) 490-8929

Creation Date
02-Nov-2009

Print Date
02-Nov-2009

Revision Summary
*****, and red text indicates revision

Reviewed
DATE: May 22, 2012
(C. Ritterford)

Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of MSDS